Huawei OptiXtrans E6600 Product Self-Test Report

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Contents

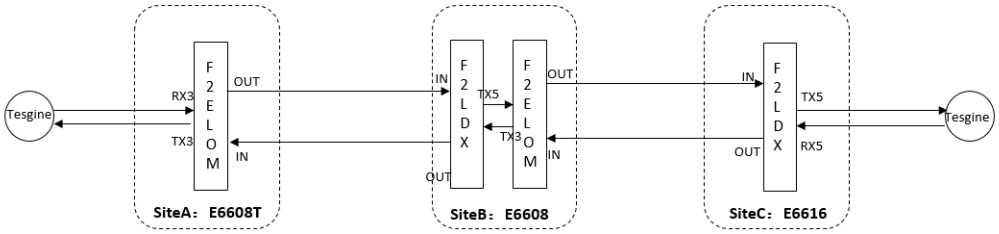
1 Environment Configurations.....3
1.1 Mapping Software Version.....3
1.2 Test Networking.....3
1.3 Hardware Configuration.....3
1.4 Software and Tools.....4
2 Function Tests.....4
2.1 Connection Modes.....4
2.2 NCE Login.....5
2.3 Service Provisioning.....7
2.4 Extended Intra-Board 1+1 Protection.....9
2.5 ALS Function.....10
2.6 DCN Channel Function.....13
3 Reliability Test.....15
3.1 Board Removal and Re-Insertion Test.....15
3.2 Optical Fiber Removal and Re-Insertion Test.....16
3.3 Optical Module Removal and Re-Insertion Test.....17
3.4 Board Warm Reset Test.....19
3.5 Board Cold Reset Test.....20
3.6 NE Power Failure Test.....21
4 Stability Test.....23
4.1 Long-Term Service Test.....23

1 Environment Configurations

1.1 Mapping Software Version

Version	Required Version	Version Compliance
V100R019C10	UTS V100R019C10	Yes
	Taitan V100R019C10	Yes

1.2 Test Networking



1.3 Hardware Configuration

Item	Description	Quantity
E6608T subrack	Subrack	1
E6608 subrack	Subrack	1
E6616 subrack	Subrack	1
TMB1SCC	System control board	1
TMK2UXC	System control board	1
TMK5SXCH	System control board	1
TMB1PIU	DC power supply	1
TMB1FAN	Fan	1
TMK5PIU	DC power supply	1
TMK5FAN	Fan	1
TMK2PIU	DC power supply	1
TMK2FAN	Fan	1
TNF2ELOM	Optical transponder board	4

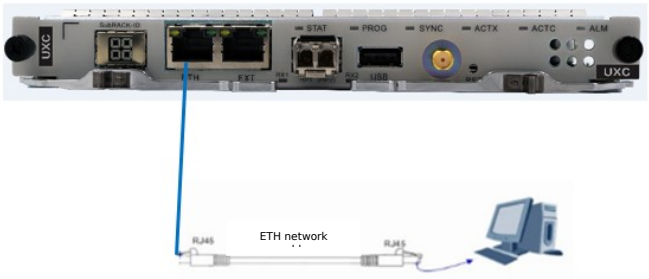
Item	Description	Quantity
TNF2LDX	Optical transponder board	2
TMK1UNQ2	Universal line board	2
TMB1OLP	Optical protection board	2

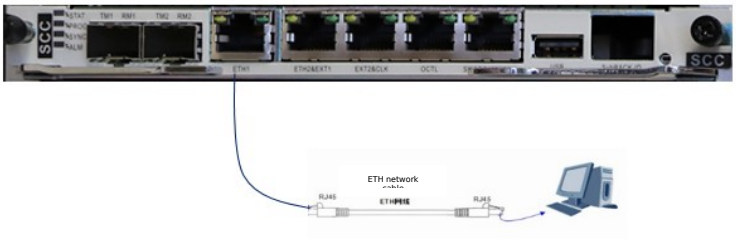
1.4 Software and Tools

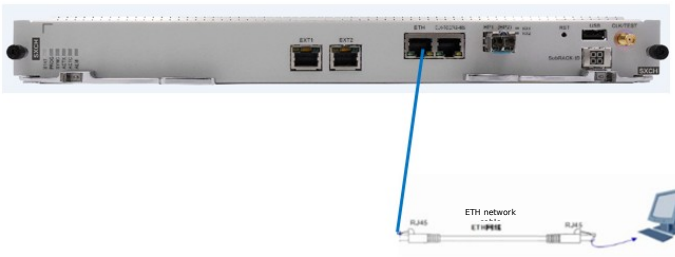
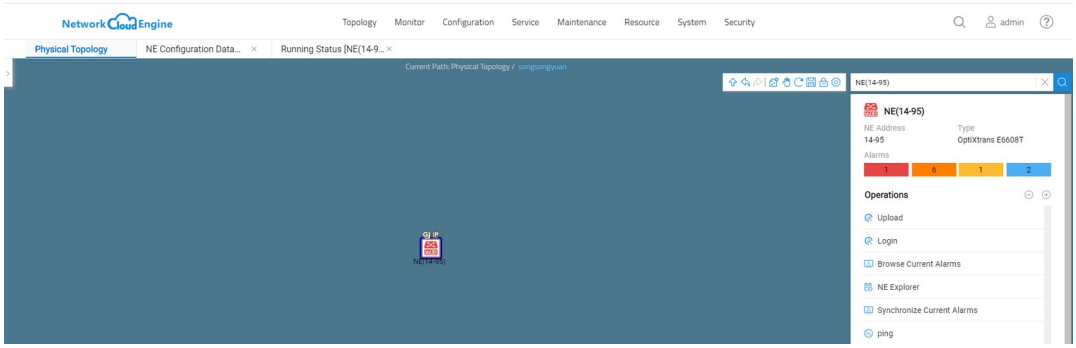
Item	Description	Quantity
NCE-T	Network Cloud Engine (Transport Domain)	1
Tesgine2.0	Test meter	2

2 Function Tests

2.1 Connection Modes

Test Case	Connection mode
Description	To verify that NCE can connect to and manage NEs
Prerequisites	• The NE is normally powered on, and the system boards (including the system control board, power board, and fan board) go online normally. • Network diagram: Connect the network cable to the ETH port on the control board. E6608:  E6608T:

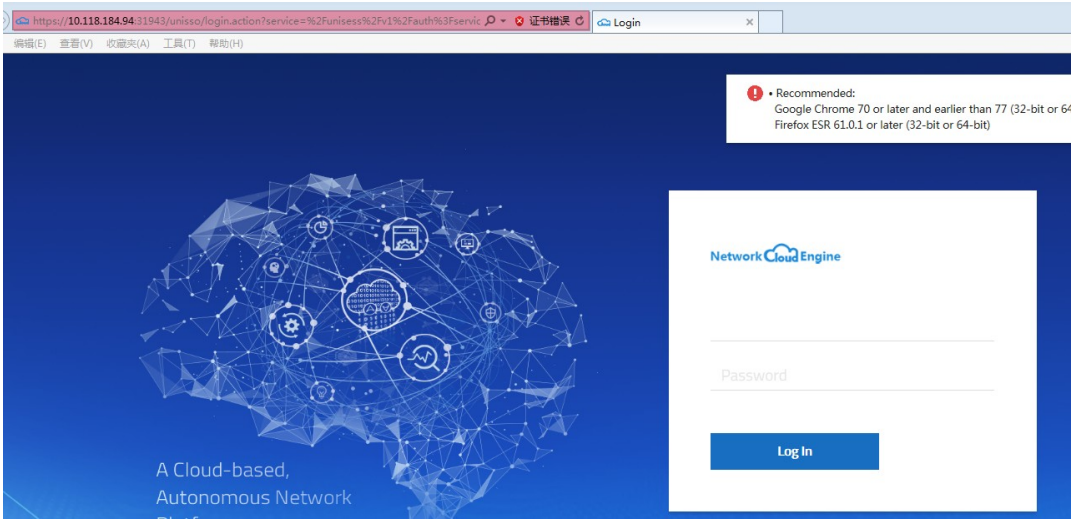
<table>
<tr><td></td><td> 

E6616:
 
</td></tr>
<tr><td>No.</td><td>Procedure/Input Data</td><td>Expected Result</td><td>Actual Result</td></tr>
<tr><td>1</td><td>Use NCE-T to connect to the NEs through the Ethernet and upload the NE data.</td><td>NCE-T can properly connect to and manage the NEs.</td><td>You have logged in to NCE, connected NEs, and managed NEs.</td></tr>
<tr><td colspan="4">Key Screenshots</td></tr>
<tr><td colspan="4">1. NCE connects to the management NE E6608T. Other NEs are connected in the same way.
 
</td></tr>
<tr><td>Criteria</td><td colspan="3">If the actual result of each step is consistent with the expected result, the test is passed. Otherwise, the test fails.</td></tr>
<tr><td>Result</td><td colspan="3">Passed</td></tr>
</table>

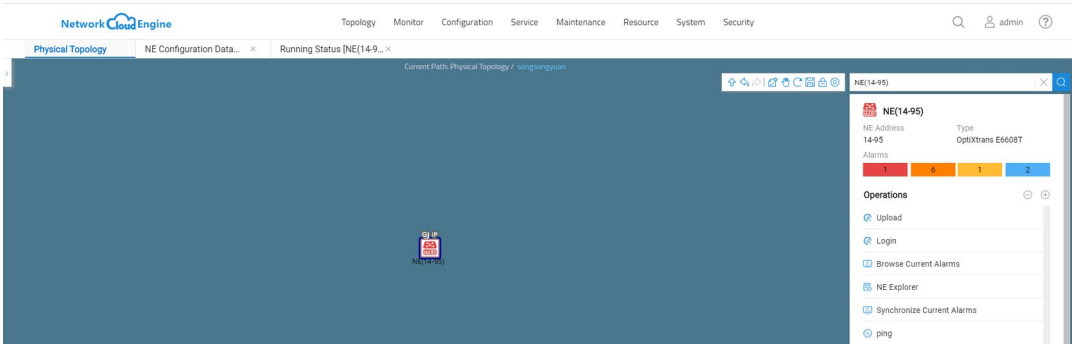
2.2 NCE Login

Test Case	Log in to NEs using NCE

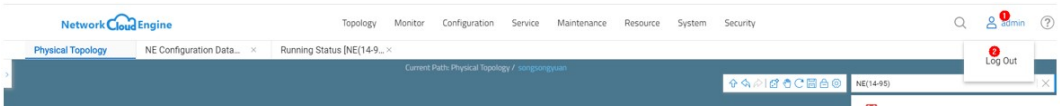
Description	To verify that users can log in to and log out of devices through NCE		
Prerequisites	• The NE is normally powered on, and the system boards (including the system control board, power board, and fan board) go online normally. • Network diagram (not involved)		
No.	**Procedure/Input Data**	**Expected Result**	**Actual Result**
1	Enter https://IP(xxx.xxx.xxx.xxx):31943 in the address box of a browser and press Enter. The NCE login window is displayed.	The NCE login window is displayed.	The login window is displayed.
2	Enter the correct user name and password to access the login management page.	The login is successful and the management page is displayed.	The login is successful and the management page is displayed.
3	Click **Log In** to access the NE management physical topology page.	The **Physical Topology** tab page is displayed.	The **Physical Topology** tab page is displayed.
4	Right-click and choose **New** > **NE** from the shortcut menu.	Enter the correct NE ID, IP address, user name, and password to create an NE and manage the NE.	The NE is successfully created and uploaded.
5	Click the user name in the upper right corner of the web page and click **Log Out**. A dialog box is displayed, prompting "Are you sure you want to log out?" Click **Yes**.	The logout is successful.	The NCE login window is closed.
Key Screenshots			
1. Enter the address The login window is displayed.			



2. NE login: Take the E6608T as an example. After an NE is added on NCE, the NE is automatically logged in.



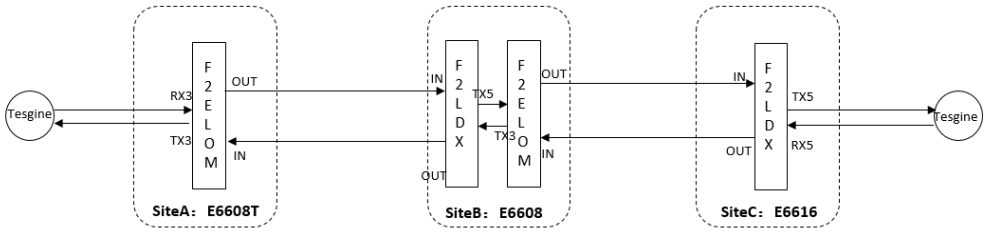
3. Log out of NCE.



Criteria	If the actual result of each step is consistent with the expected result, the test is passed. Otherwise, the test fails.
Result	**Passed**

2.3 Service Provisioning

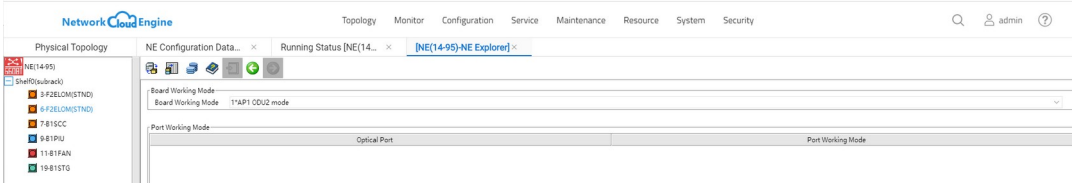
Test Case	Service provisioning
Description	To verify that the 10GELAN services are normal, and no bit error occurs
Prerequisites	The test meters and environment are properly powered on, and the test meters are normal.

	The networking diagram for the test is as follows. 

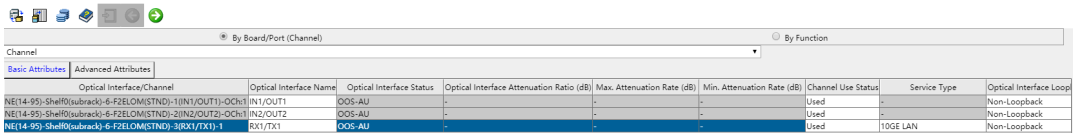
No.	Procedure	Expected Result	Actual Result
1	Set the subboard mode of the ELOM board to 1ap1_ODU2.	The default mode 1ap8_general is changed to 1ap1_odu2 successfully.	The subboard mode is changed and the current working mode queried on NCE is 1ap1_odu2.
2	Insert an optical module on the client side and configure the service type.	After the board works properly, the service meter can receive data normally. The F2LDX and F2ELOM service types can be configured and queried on NCE.	The board works properly. After the client-side module is inserted, the service meter can receive data normally and the client-side service type can be queried on NCE.
3	Configure client-side and WDM-side cross-connections.	The cross-connections can be normally delivered, and the services are available on the test meter.	The cross-connections are successfully configured on NCE, and the service packets are normally received and transmitted on the test meter.
4	Check the services.	The service meter can receive data normally. After the test is performed for five minutes, no bit error occurs.	The service meter can receive data normally. After the test is performed for five minutes, no bit error or packet loss occurs.

Key Screenshots

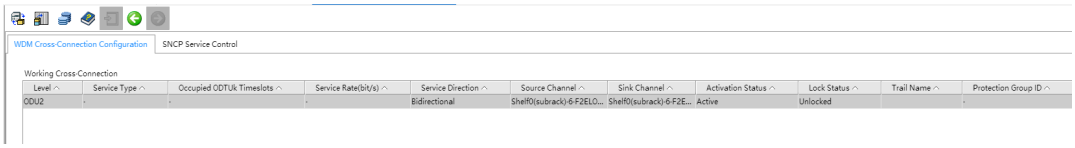
1. Query the subboard mode.



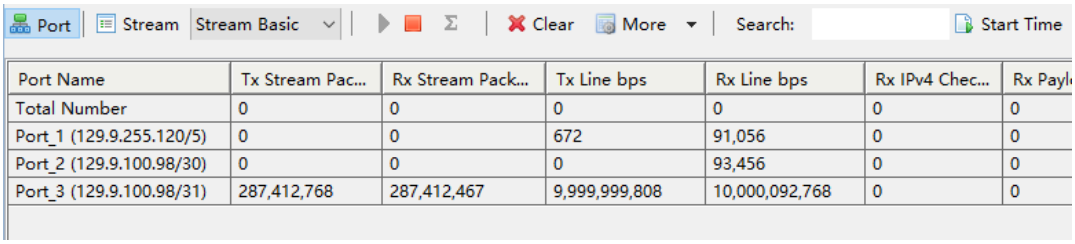
2. Query the client-side service type and observe the test meter.



3. Query cross-connections and observe the test meter.

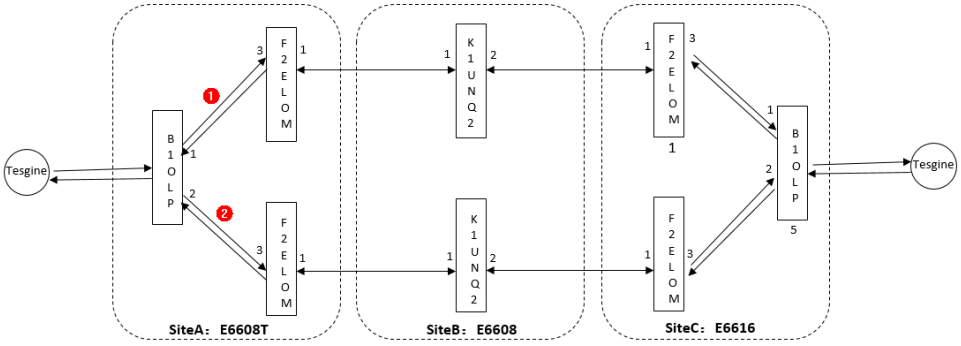


Meters:



Criteria	If the actual result of each step is consistent with the expected result, the test is passed. Otherwise, the test fails.
Result	**Passed**

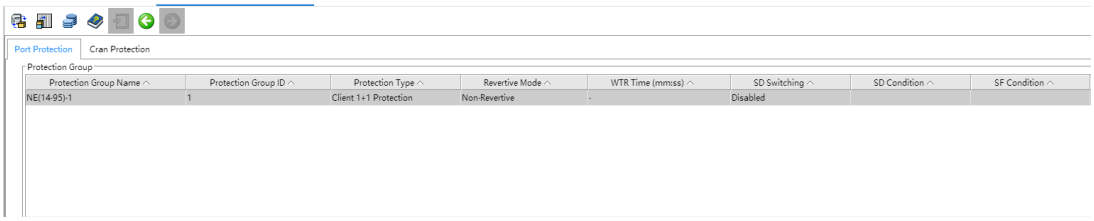
2.4 Extended Intra-Board 1+1 Protection

Test Case	Client 1+1 protection
Description	To verify client 1+1 protection switching
Prerequisites	The test meters and environment are properly powered on, and the test meters are normal. The networking diagram for the test is as follows. 

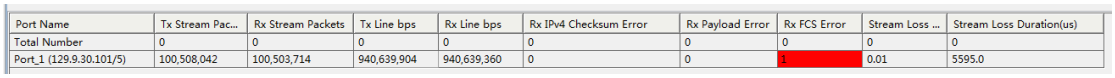
No.	Procedure	Expected Result	Actual Result
1	Create the client 1+1 protection group.	The protection is successfully configured and services are normally provisioned. The working and protection links are in the NORMAL state. The protection group is in the working state.	The protection is successfully configured and services are normally provisioned. The working and protection links are in the NORMAL state. The protection group is in the working state.
2	Disconnect the fiber at point 1 in the networking diagram to simulate a fault on the working path.	The protection group is switched from the working channel to the protection channel. Services are quickly restored after being interrupted. The recovery time is less than 50 ms.	The protection group is switched from the working channel to the protection channel. Services are quickly restored after being interrupted. The recovery time is less than 50 ms.
3	Restore the fiber connection at point 1 in the networking diagram. After the working and protection links become normal, disconnect the fiber at point 2 in the networking diagram to simulate a fault on the protection link.	The protection group is switched from the protection channel to the working channel. Services are quickly restored after being interrupted. The recovery time is less than 50 ms.	The protection group is switched from the protection channel to the working channel. Services are quickly restored after being interrupted. The recovery time is less than 50 ms.

Key Screenshots

1. The extended intra-board 1+1 protection is successfully configured and services are normally provisioned. The working and protection links are in the NORMAL state.



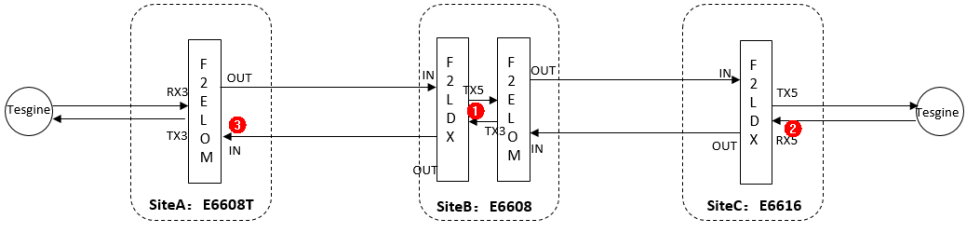
2. When a fiber cut occurs at point 1, the protection group is switched from the working channel to the protection channel. Services are quickly restored after being interrupted. The recovery time is less than 50 ms.



Port Name	Tx Stream Pac...	Rx Stream Packets	Tx Line bps	Rx Line bps	Rx IPv4 Checksum Error	Rx Payload Error	Rx FCS Error	Stream Loss ...	Stream Loss Duration(us)
Total Number	0	0	0	0	0	0	0	0	0
Port_1 (129.9.30.101/5)	100,508,042	100,503,714	940,639,904	940,639,360	0	0	1	0.01	5595.0

3. The fiber cut at point 1 is restored and a fiber fault at point 2 is simulated. Services are quickly restored after being interrupted. The recovery time is less than 50 ms. Port Name | Tx Stream Pac... | Rx Stream Packets | Tx Line bps | Rx Line bps | Rx IPv4 Checksum Error | Rx Payload Error | Rx FCS Error | Stream Loss ... | Stream Loss Duration(us) Total Number | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 Port_1 (129.9.30.101/5) | 11,326,013 | 11,319,847 | 1,000,000,160 | 999,999,680 | 0 | 0 | [redacted] | 0.01 | 7497.9	
Criteria	If the actual result of each step is consistent with the expected result, the test is passed. Otherwise, the test fails.
Result	**Passed**

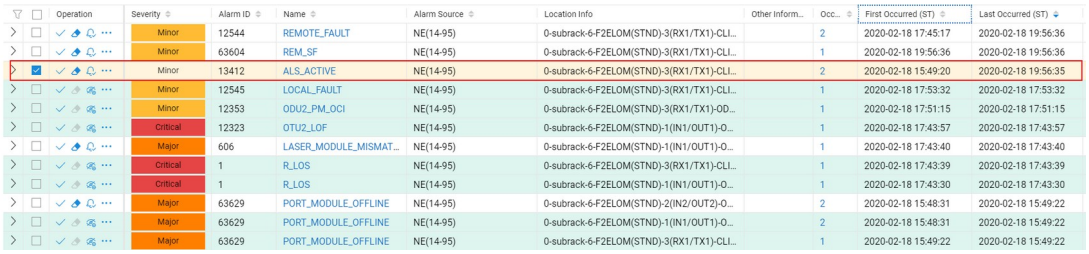
2.5 ALS Function

Test Case	ALS		
Description	To verify whether the ALS function on the client side of the board is normal and whether related alarms can be normally reported		
Prerequisites	The test meters and environment are properly powered on, and the test meters are normal. The networking diagram for the test is as follows.  Services are provisioned as usual.		
No.	**Procedure**	**Expected Result**	**Actual Result**
1	Disconnect the fiber at point 1 or 2 in the networking diagram.	The service is interrupted. The meter shows that packet loss occurs. The client side of the peer OTU board reports the ALS_ACTIVE alarm.	After a fiber cut occurs at point 1 or 2, the service is interrupted. The meter shows that packet loss occurs and the client side of the peer ELOM board reports the ALS_ACTIVE alarm.
2	Restore the fiber connection at point 1 in the networking diagram.	The service is restored, the test meter returns to the normal state, and the ALS_ACTIVE alarm on the peer OTU board is cleared.	The fiber is restored, the test meter returns to the normal state, and the ALS_ACTIVE alarm on the peer ELOM board is cleared.
3	Disconnect the fiber at point 2 in	The service is interrupted. The meter	As shown in the preceding figure, a fiber

	the networking diagram.	shows that packet loss occurs. The client side of the local OTU board reports the ALS_ACTIVE alarm.	cut occurs at point 2 and services are interrupted. The meter shows that packet loss occurs. The client side of the local ELOM board reports the ALS_ACTIVE alarm.
4	Restore the fiber connection at point 2 in the networking diagram.	The service is restored, the test meter returns to the normal state, and the ALS_ACTIVE alarm on the local OTU board is cleared.	The fiber is restored. The service is restored and the test meter returns to the normal state. The ALS_ACTIVE alarm on the local ELOM board is cleared.

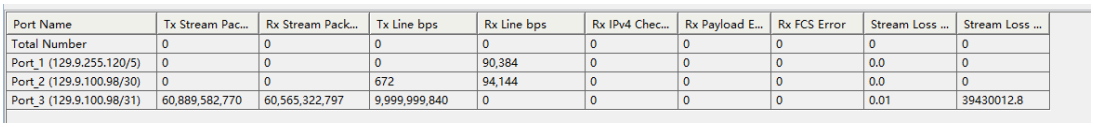
Key Screenshots

1. A fiber cut occurs at point 1, and the peer end reports the ALS_ACTIVE alarm.



Operation	Severity	Alarm ID	Name	Alarm Source	Location Info	Other Inform...	Occ...	First Occurred (ST)	Last Occurred (ST)
	Minor	12544	REMOTE_FAULT	NE(14-95)	0-subrack-6-F2ELOM(STND)-3(RX1/TX1)-CLI...		2	2020-02-18 17:45:17	2020-02-18 19:56:36
	Minor	63604	REM_SF	NE(14-95)	0-subrack-6-F2ELOM(STND)-3(RX1/TX1)-CLI...		1	2020-02-18 19:56:36	2020-02-18 19:56:36
	Minor	13412	ALS_ACTIVE	NE(14-95)	0-subrack-6-F2ELOM(STND)-3(RX1/TX1)-CLI...		2	2020-02-18 15:49:20	2020-02-18 19:56:35
	Minor	12545	LOCAL_FAULT	NE(14-95)	0-subrack-6-F2ELOM(STND)-3(RX1/TX1)-CLI...		1	2020-02-18 17:53:32	2020-02-18 17:53:32
	Minor	12353	ODU2_PM_OCI	NE(14-95)	0-subrack-6-F2ELOM(STND)-3(RX1/TX1)-OD...		1	2020-02-18 17:51:15	2020-02-18 17:51:15
	Critical	12323	OTU2_LOF	NE(14-95)	0-subrack-6-F2ELOM(STND)-1(IN1/OUT1)-O...		1	2020-02-18 17:43:57	2020-02-18 17:43:57
	Major	606	LASER_MODULE_MISMAT...	NE(14-95)	0-subrack-6-F2ELOM(STND)-1(IN1/OUT1)-O...		1	2020-02-18 17:43:40	2020-02-18 17:43:40
	Critical	1	R_LOS	NE(14-95)	0-subrack-6-F2ELOM(STND)-3(RX1/TX1)-CLI...		1	2020-02-18 17:43:39	2020-02-18 17:43:39
	Critical	1	R_LOS	NE(14-95)	0-subrack-6-F2ELOM(STND)-1(IN1/OUT1)-O...		1	2020-02-18 17:43:30	2020-02-18 17:43:30
	Major	63629	PORT_MODULE_OFFLINE	NE(14-95)	0-subrack-6-F2ELOM(STND)-2(IN2/OUT2)-O...		2	2020-02-18 15:48:31	2020-02-18 15:49:22
	Major	63629	PORT_MODULE_OFFLINE	NE(14-95)	0-subrack-6-F2ELOM(STND)-1(IN1/OUT1)-O...		2	2020-02-18 15:48:31	2020-02-18 15:49:22
	Major	63629	PORT_MODULE_OFFLINE	NE(14-95)	0-subrack-6-F2ELOM(STND)-3(RX1/TX1)-CLI...		1	2020-02-18 15:49:22	2020-02-18 15:49:22

Service interruption

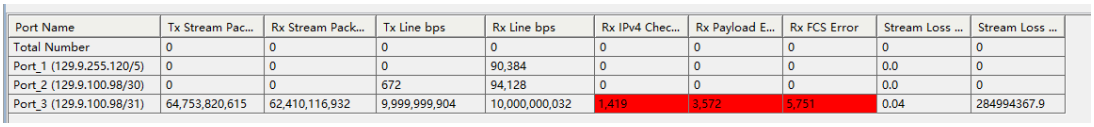


Port Name	Tx Stream Pac...	Rx Stream Pack...	Tx Line bps	Rx Line bps	Rx IPv4 Chec...	Rx Payload E...	Rx FCS Error	Stream Loss ...	Stream Loss ...
Total Number	0	0	0	0	0	0	0	0	0
Port_1 (129.9.255.120/5)	0	0	0	90,384	0	0	0	0.0	0
Port_2 (129.9.100.98/30)	0	0	672	94,144	0	0	0	0.0	0
Port_3 (129.9.100.98/31)	60,889,582,770	60,565,322,797	9,999,999,840	0	0	0	0	0.01	39430012.8

2. The fiber at point 1 is restored, and the ALS_ACTIVE alarm on port 3 is cleared.

Operation	Name	Alarm Source	Location Info	Other Inform...	Occurrences	First Occurred (ST)	Last Occurred (ST)	Cleared On (ST)
	REMOTE_FAULT	NE(14-95)	0-subrack-6-F2ELOM(STND)-3(RX1/TX1)-CLI...		2	2020-02-18 17:45:17	2020-02-18 19:56:36	2020-02-18 20:01:23
	REM_SF	NE(14-95)	0-subrack-6-F2ELOM(STND)-3(RX1/TX1)-CLI...		1	2020-02-18 19:56:36	2020-02-18 19:56:36	2020-02-18 20:01:19
	ALS_ACTIVE	NE(14-95)	0-subrack-6-F2ELOM(STND)-3(RX1/TX1)-CLI...		2	2020-02-18 15:49:20	2020-02-18 19:56:35	2020-02-18 20:01:20
	LOCAL_FAULT	NE(14-95)	0-subrack-6-F2ELOM(STND)-3(RX1/TX1)-CLI...		1	2020-02-18 17:53:32	2020-02-18 17:53:32	2020-02-18 17:53:39
	ODU2_PM_OCI	NE(14-95)	0-subrack-6-F2ELOM(STND)-3(RX1/TX1)-OD...		1	2020-02-18 17:51:15	2020-02-18 17:51:15	2020-02-18 17:51:20
	OTU2_LOF	NE(14-95)	0-subrack-6-F2ELOM(STND)-1(IN1/OUT1)-O...		1	2020-02-18 17:43:57	2020-02-18 17:43:57	2020-02-18 17:53:44
	LASER_MODULE_MISMAT...	NE(14-95)	0-subrack-6-F2ELOM(STND)-1(IN1/OUT1)-O...		1	2020-02-18 17:43:40	2020-02-18 17:43:40	
	R_LOS	NE(14-95)	0-subrack-6-F2ELOM(STND)-3(RX1/TX1)-CLI...		1	2020-02-18 17:43:39	2020-02-18 17:43:39	2020-02-18 17:45:10
	R_LOS	NE(14-95)	0-subrack-6-F2ELOM(STND)-1(IN1/OUT1)-O...		1	2020-02-18 17:43:30	2020-02-18 17:43:30	2020-02-18 17:43:56
	PORT_MODULE_OFFLINE	NE(14-95)	0-subrack-6-F2ELOM(STND)-2(IN2/OUT2)-O...		2	2020-02-18 15:48:31	2020-02-18 15:49:22	
	PORT_MODULE_OFFLINE	NE(14-95)	0-subrack-6-F2ELOM(STND)-1(IN1/OUT1)-O...		2	2020-02-18 15:48:31	2020-02-18 15:49:22	2020-02-18 17:43:30
	PORT_MODULE_OFFLINE	NE(14-95)	0-subrack-6-F2ELOM(STND)-3(RX1/TX1)-CLI...		1	2020-02-18 15:49:22	2020-02-18 15:49:22	2020-02-18 17:43:38

Service recovery



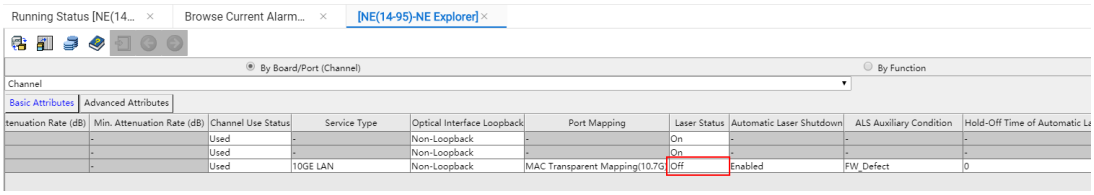
Port Name	Tx Stream Pac...	Rx Stream Pack...	Tx Line bps	Rx Line bps	Rx IPv4 Chec...	Rx Payload E...	Rx FCS Error	Stream Loss ...	Stream Loss ...
Total Number	0	0	0	0	0	0	0	0	0
Port_1 (129.9.255.120/5)	0	0	0	90,384	0	0	0	0.0	0
Port_2 (129.9.100.98/30)	0	0	672	94,128	0	0	0	0.0	0
Port_3 (129.9.100.98/31)	64,753,820,615	62,410,116,932	9,999,999,904	10,000,000,032	1,419	3,572	5,751	0.04	284994367.9

3. A fiber cut occurs at point 2. The WDM side of the local NE reports the R_LOS alarm

and the client side of the local NE reports the ALS_ACTIVE alarm.

Operation	Severity	Alarm ID	Name	Alarm Source	Location Info	Other Inform...	Occurrences	First Occurred (ST)	Last Occurred (ST)
	Critical	1	R_LOS	NE(14-95)	0-subrack-6-F2ELOM(STND)-1(IN1/OUT1)-O...		2	2020-02-18 17:43:30	2020-02-18 20:06:12
	Minor	13412	ALS_ACTIVE	NE(14-95)	0-subrack-6-F2ELOM(STND)-3(RX1/TX1)-CLI...		3	2020-02-18 15:49:20	2020-02-18 20:06:11
	Minor	12544	REMOTE_FAULT	NE(14-95)	0-subrack-6-F2ELOM(STND)-3(RX1/TX1)-CLI...		3	2020-02-18 17:45:17	2020-02-18 20:06:11
	Minor	63604	REM_SF	NE(14-95)	0-subrack-6-F2ELOM(STND)-3(RX1/TX1)-CLI...		1	2020-02-18 19:56:36	2020-02-18 19:56:36

The client-side laser is shut down and services are interrupted.



Running Status [NE(14... | Browse Current Alarm... | [NE(14-95)-NE Explorer]

By Board/Port (Channel) | By Function

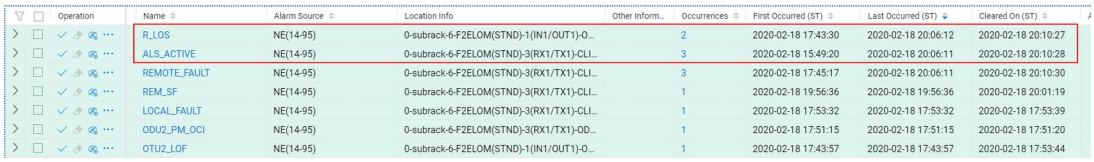
Channel

Basic Attributes | Advanced Attributes

tenuation Rate (dB)	Min. Attenuation Rate (dB)	Channel Use Status	Service Type	Optical Interface Loopback	Port Mapping	Laser Status	Automatic Laser Shutdown	ALS Auxiliary Condition	Hold-Off Time of Automatic La
	-	Used	-	Non-Loopback	-	On	-	-	-
	-	Used	-	Non-Loopback	-	On	-	-	-
	-	Used	10GE LAN	Non-Loopback	MAC Transparent Mapping(10.7G	Off	Enabled	FW_Defect	0

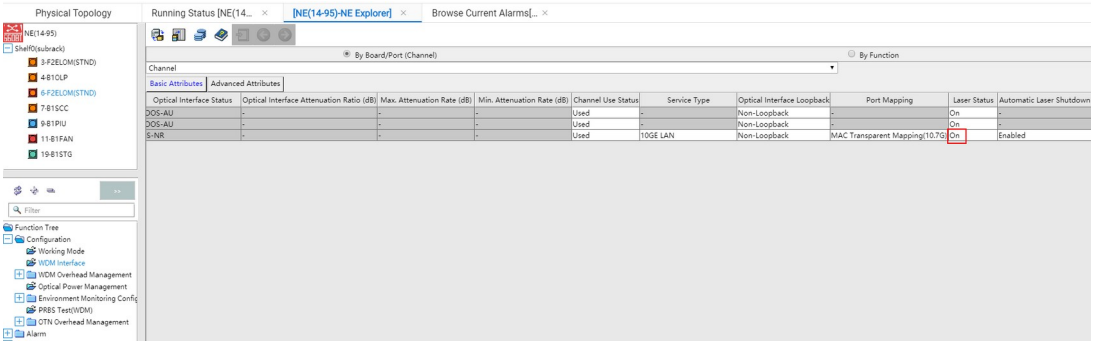
Port Name	Tx Stream Pac...	Rx Stream Pack...	Tx Line bps	Rx Line bps	Rx IPv4 Chec...	Rx Payload E...	Rx FCS Error	Stream Loss ...	Stream Loss ...
Total Number	0	0	0	0	0	0	0	0	0
Port_1 (129.9.255.120/5)	0	0	0	91,200	0	0	0	0.0	0
Port_2 (129.9.100.98/30)	0	0	672	94,816	0	0	0	0.0	0
Port_3 (129.9.100.98/31)	67,056,844,715	62,954,793,532	9,999,999,936	0	1,419	3,572	5,751	0.07	498809423.9

4. After the fiber at point 2 is restored, the ALS_ACTIVE alarm on the client-side port is cleared.



Operation	Name	Alarm Source	Location Info	Other Inform...	Occurrences	First Occurred (ST)	Last Occurred (ST)	Cleared On (ST)
	R_LOS	NE(14-95)	0-subrack-6-F2ELOM(STND)-1(IN1/OUT1)-O...		2	2020-02-18 17:43:30	2020-02-18 20:06:12	2020-02-18 20:10:27
	ALS_ACTIVE	NE(14-95)	0-subrack-6-F2ELOM(STND)-3(RX1/TX1)-CLI...		3	2020-02-18 15:49:20	2020-02-18 20:06:11	2020-02-18 20:10:28
	REMOTE_FAULT	NE(14-95)	0-subrack-6-F2ELOM(STND)-3(RX1/TX1)-CLI...		3	2020-02-18 17:45:17	2020-02-18 20:06:11	2020-02-18 20:10:30
	REM_SF	NE(14-95)	0-subrack-6-F2ELOM(STND)-3(RX1/TX1)-CLI...		1	2020-02-18 19:56:36	2020-02-18 19:56:36	2020-02-18 20:01:19
	LOCAL_FAULT	NE(14-95)	0-subrack-6-F2ELOM(STND)-3(RX1/TX1)-CLI...		1	2020-02-18 17:53:32	2020-02-18 17:53:32	2020-02-18 17:53:39
	ODU2_PM_OCI	NE(14-95)	0-subrack-6-F2ELOM(STND)-3(RX1/TX1)-OD...		1	2020-02-18 17:51:15	2020-02-18 17:51:15	2020-02-18 17:51:20
	OTU2_LOF	NE(14-95)	0-subrack-6-F2ELOM(STND)-1(IN1/OUT1)-O...		1	2020-02-18 17:43:57	2020-02-18 17:43:57	2020-02-18 17:53:44

The client-side laser is enabled.



Physical Topology | Running Status [NE(14... | [NE(14-95)-NE Explorer] | Browse Current Alarms[...

NE(14-95)
Shelf0(subrack)
3-F2ELOM(STND)
4-81OLP
6-F2ELOM(STND)
7-81SCC
9-81PIU
11-81FAN
19-81STG

Function Tree
Configuration
Working Mode
WDM Interface
WDM Overhead Management
Optical Power Management
Environment Monitoring Config
PRBS Test(WDM)
OTN Overhead Management
Alarm

By Board/Port (Channel) | By Function

Channel

Basic Attributes | Advanced Attributes

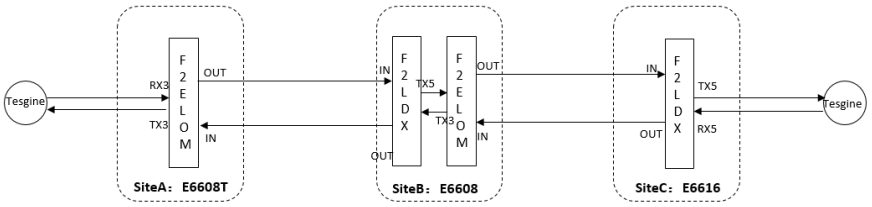
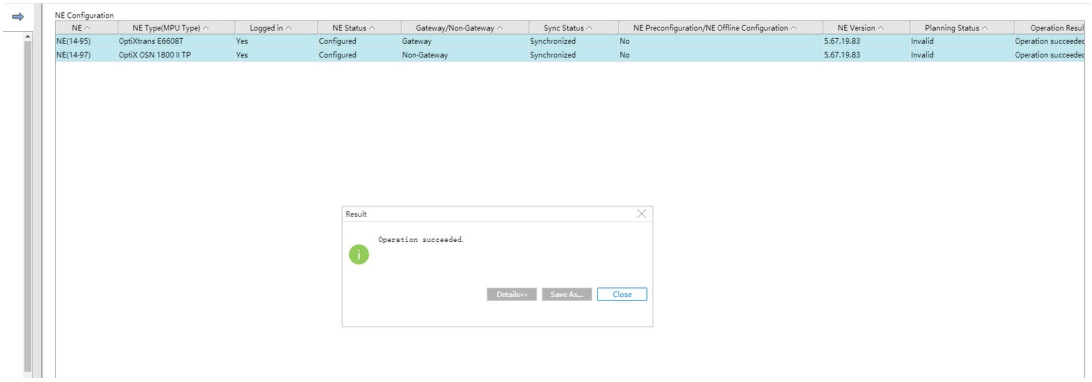
Optical Interface Status	Optical Interface Attenuation Ratio (dB)	Max. Attenuation Rate (dB)	Min. Attenuation Rate (dB)	Channel Use Status	Service Type	Optical Interface Loopback	Port Mapping	Laser Status	Automatic Laser Shutdown
OOS-AU	-	-	-	Used	-	Non-Loopback	-	On	-
OOS-AU	-	-	-	Used	-	Non-Loopback	-	On	-
S-NR	-	-	-	Used	10GE LAN	Non-Loopback	MAC Transparent Mapping(10.7G	On	Enabled

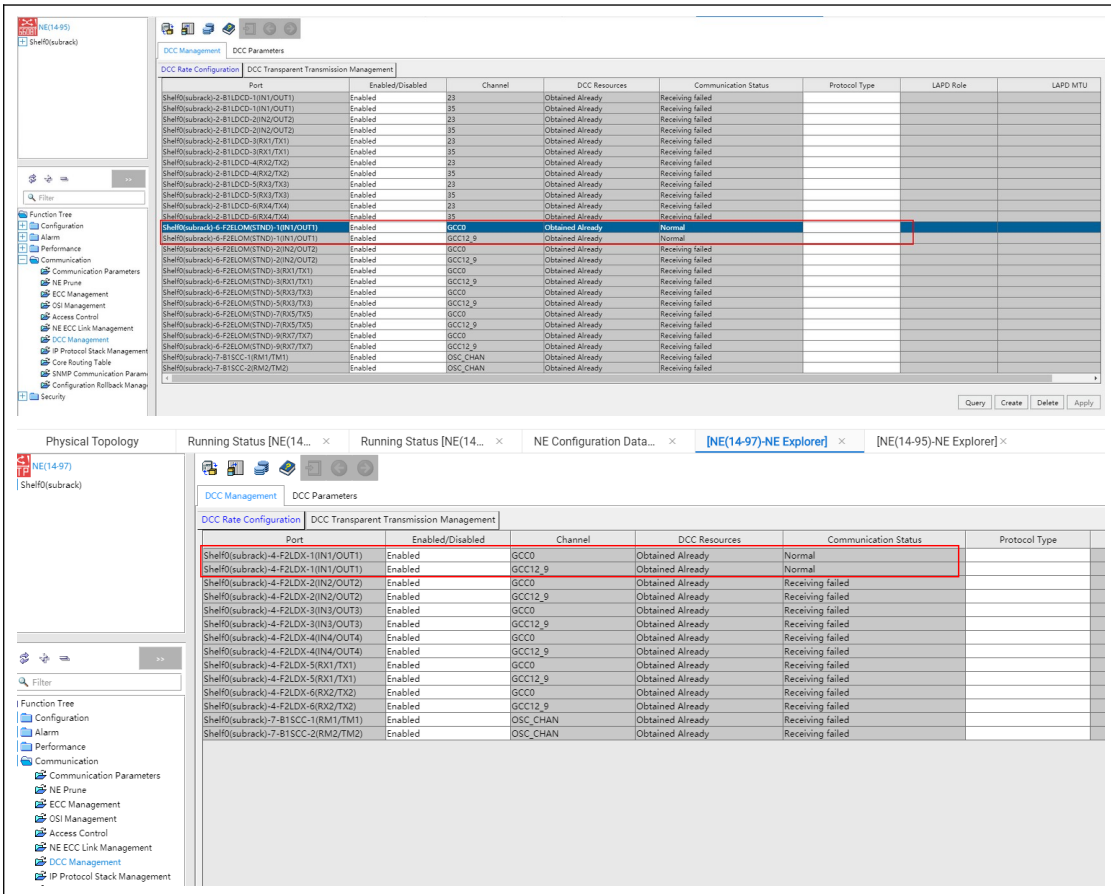
Port Name	Tx Stream Pac...	Rx Stream Pack...	Tx Line bps	Rx Line bps	Rx IPv4 Chec...	Rx Payload E...	Rx FCS Error	Stream Loss ...	Stream Loss ...
Total Number	0	0	0	0	0	0	0	0	0
Port_1 (129.9.255.120/5)	0	0	0	91,872	0	0	0	0.0	0
Port_2 (129.9.100.98/30)	0	0	0	92,784	0	0	0	0.0	0
Port_3 (129.9.100.98/31)	68,592,985,087	64,134,724,984	9,999,999,872	10,000,000,064	1,419	3,572	5,751	0.07	542124428.6

Criteria	If the actual result of each step is consistent with the expected result, the test is passed. Otherwise, the test fails.
Result	**Passed**

2.6 DCN Channel Function

Test Case	DCN channel function

Description	To test the DCN channels of the board and verify that the non-gateway NE can be managed normally and the DCC communication status is normal		
Prerequisites	The test meters and environment are properly powered on, and the test meters are normal. The following figure shows the test networking diagram. The OTU boards are on different NEs.  Services are provisioned as usual.		
No.	**Procedure**	**Expected Result**	**Actual Result**
1	Upload the NE1 to NCE as a gateway NE.	NE 1 is successfully uploaded to NCE and can be managed by NCE.	NE 1 is successfully uploaded to NCE and can be properly managed.
2	Upload NE 2 to NCE in non-gateway NE mode. Select NE 1 as the non-gateway NE of NE 2.	NE 2 is successfully uploaded to NCE and can be managed by NCE.	Non-gateway NE 2 is successfully created and uploaded to NCE.
3	Query the DCC communication status of NE1 and NE2 on NCE.	The DCC information of NE1 and NE2 can be queried and the communication status is NORMAL.	The DCC information of NE1 and NE2 is queried and the communication status is NORMAL.
Key Screenshots			
1. The gateway and non-gateway NEs are uploaded successfully.  2. The DCC communication status is queried.			

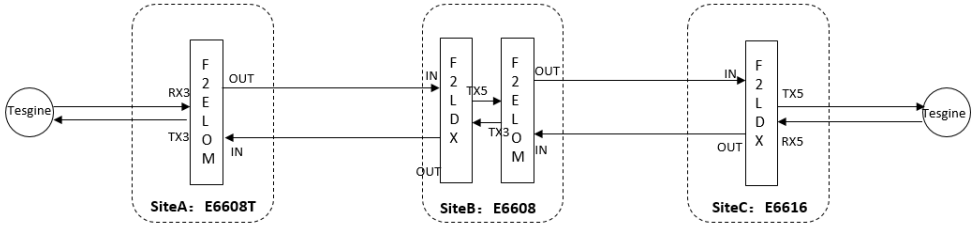


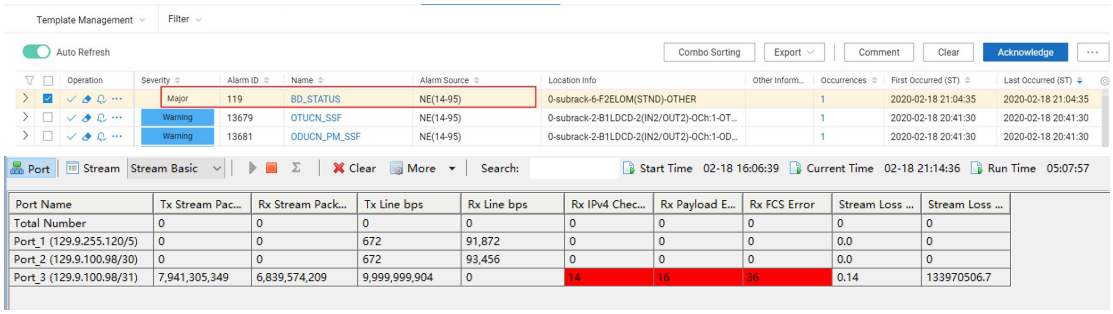
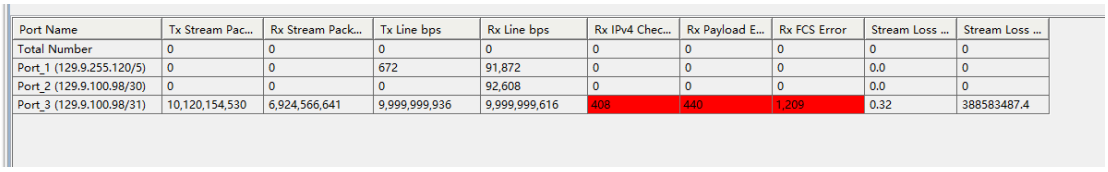
Criteria	If the actual result of each step is consistent with the expected result, the test is passed. Otherwise, the test fails.
Result	**Passed**

3 Reliability Test

3.1 Board Removal and Re-Insertion Test

Test Case	Board removal and re-insertion test
Description	To verify the service recovery after board removal and re-insertion
Prerequisites	The E2E networking is completed as shown in the following diagram.

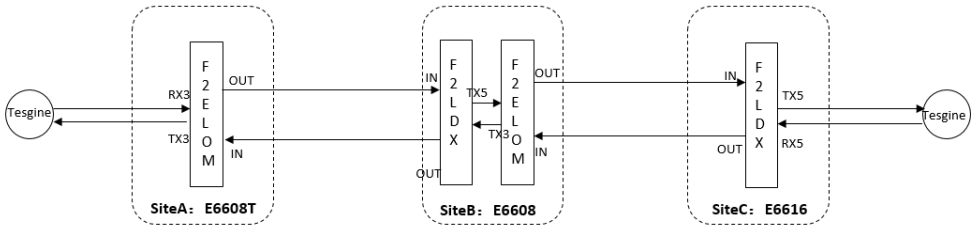


	The test meters and environment are properly powered on, services are provisioned, and no bit error occurs.		
No.	**Procedure/Input Data**	**Expected Result**	**Actual Result**
1	Remove the F2ELOM board at site A.	The board is offline, a BD_STATUS alarm is reported, and services are interrupted.	Services are interrupted, and the board reports the BD_STATUS alarms.
2	Insert the F2ELOM board at site A.	The board goes online normally and services can be restored within 3 minutes.	The board goes online normally and services are restored normally.
3	Query the NE alarms and performance events.	No anomaly alarms or performance events are reported.	No anomaly alarms or performance events are reported.
Key Screenshots			
1. The board is removed and re-inserted.  2. After the board is re-inserted, services are restored. 			
Criteria	If the actual result of each step is consistent with the expected result, the test is passed. Otherwise, the test fails.		
Result	**Passed**		

Template Management
Filter
Auto Refresh
Combo Sorting
Export
Comment
Clear
Acknowledge
Operation
Severity
Alarm ID
Name
Alarm Source
Location Info
Other Inform...
Occurrences
First Occurred (ST)
Last Occurred (ST)
Major 119 BD_STATUS NE(14-95) 0-subrack-6-F2ELOM(STND)-OTHER 1 2020-02-18 21:04:35 2020-02-18 21:04:35
Warning 13679 OTUCN_SSF NE(14-95) 0-subrack-2-B1LDCD-2(IN2/OUT2)-OCh:1-OT... 1 2020-02-18 20:41:30 2020-02-18 20:41:30
Warning 13681 ODUCN_PM_SSF NE(14-95) 0-subrack-2-B1LDCD-2(IN2/OUT2)-OCh:1-OD... 1 2020-02-18 20:41:30 2020-02-18 20:41:30
Port
Stream
Stream Basic
Clear
More
Search:
Start Time 02-18 16:06:39
Current Time 02-18 21:14:36
Run Time 05:07:57
Port Name | Tx Stream Pac... | Rx Stream Pack... | Tx Line bps | Rx Line bps | Rx IPv4 Chec... | Rx Payload E... | Rx FCS Error | Stream Loss ... | Stream Loss ...
Total Number | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0
Port_1 (129.9.255.120/5) | 0 | 0 | 672 | 91,872 | 0 | 0 | 0 | 0.0 | 0
Port_2 (129.9.100.98/30) | 0 | 0 | 672 | 93,456 | 0 | 0 | 0 | 0.0 | 0
Port_3 (129.9.100.98/31) | 7,941,305,349 | 6,839,574,209 | 9,999,999,904 | 0 | 14 | 16 | 36 | 0.14 | 133970506.7
Port Name | Tx Stream Pac... | Rx Stream Pack... | Tx Line bps | Rx Line bps | Rx IPv4 Chec... | Rx Payload E... | Rx FCS Error | Stream Loss ... | Stream Loss ...
Total Number | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0
Port_1 (129.9.255.120/5) | 0 | 0 | 672 | 91,872 | 0 | 0 | 0 | 0.0 | 0
Port_2 (129.9.100.98/30) | 0 | 0 | 0 | 92,608 | 0 | 0 | 0 | 0.0 | 0
Port_3 (129.9.100.98/31) | 10,120,154,530 | 6,924,566,641 | 9,999,999,936 | 9,999,999,616 | 408 | 440 | 1,209 | 0.32 | 388583487.4

3.2 Optical Fiber Removal and Re-Insertion Test

Test Case	Optical fiber removal and re-insertion test
Description	To verify the service recovery after fiber removal and re-insertion
Prerequisites	The E2E networking is completed as shown in the following diagram.

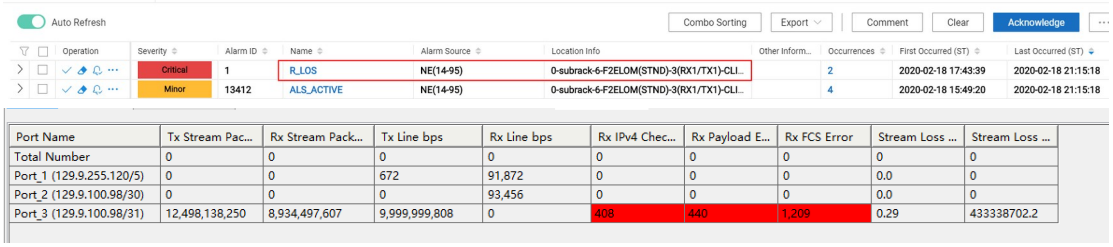


The test meters and environment are properly powered on, services are provisioned, and no bit error occurs.

No.	Procedure/Input Data	Expected Result	Actual Result
1	Remove the client-side fiber from the ELOM board at site A.	Services are interrupted, and the board reports the R_LOS alarm.	Services are interrupted and the client side reports the R_LOS alarm.
2	Reconnect the client-side fiber to the ELOM board at site A.	The R_LOS alarms are cleared, and services are restored.	The R_LOS alarms are cleared, and services are restored.
3	Query the NE alarms and performance events.	No anomaly alarms or performance events are reported.	No anomaly alarms or performance events are reported.

Key Screenshots

1. The client-side fiber is disconnected.



Port Name	Tx Stream Pac...	Rx Stream Pack...	Tx Line bps	Rx Line bps	Rx IPv4 Chec...	Rx Payload E...	Rx FCS Error	Stream Loss ...	Stream Loss ...
Total Number	0	0	0	0	0	0	0	0	0
Port_1 (129.9.255.120/5)	0	0	672	91,872	0	0	0	0.0	0
Port_2 (129.9.100.98/30)	0	0	0	93,456	0	0	0	0.0	0
Port_3 (129.9.100.98/31)	12,498,138,250	8,934,497,607	9,999,999,808	0	408	440	1,209	0.29	433338702.2

2. Services can be restored after the fault is rectified.

Port Name	Tx Stream Pac...	Rx Stream Pack...	Tx Line bps	Rx Line bps	Rx IPv4 Chec...	Rx Payload E...	Rx FCS Error	Stream Loss ...	Stream Loss ...
Total Number	0	0	0	0	0	0	0	0	0
Port_1 (129.9.255.120/5)	0	0	0	91,200	0	0	0	0.0	0
Port_2 (129.9.100.98/30)	0	0	0	91,936	0	0	0	0.0	0
Port_3 (129.9.100.98/31)	12,819,999,114	9,102,107,190	10,000,000,000	9,999,999,936	408	441	1,210	0.3	452095658.0

3. The WDM-side fiber is removed.

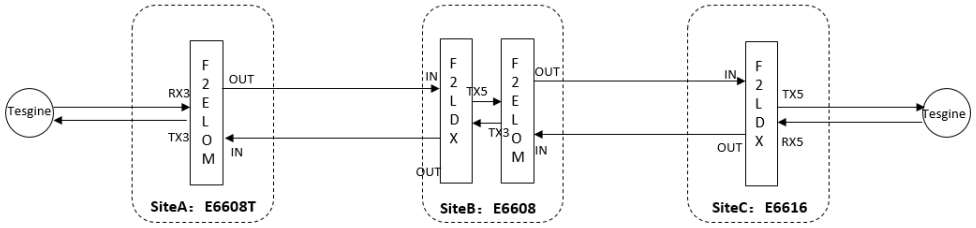
Port Name	Tx Stream Pac...	Rx Stream Pack...	Tx Line bps	Rx Line bps	Rx IPv4 Chec...	Rx Payload E...	Rx FCS Error	Stream Loss ...	Stream Loss ...
Total Number	0	0	0	0	0	0	0	0	0
Port_1 (129.9.255.120/5)	0	0	672	91,872	0	0	0	0.0	0
Port_2 (129.9.100.98/30)	0	0	0	92,608	0	0	0	0.0	0
Port_3 (129.9.100.98/31)	13,538,148,235	9,494,218,715	9,999,999,904	0	408	441	1,210	0.3	491741829.7

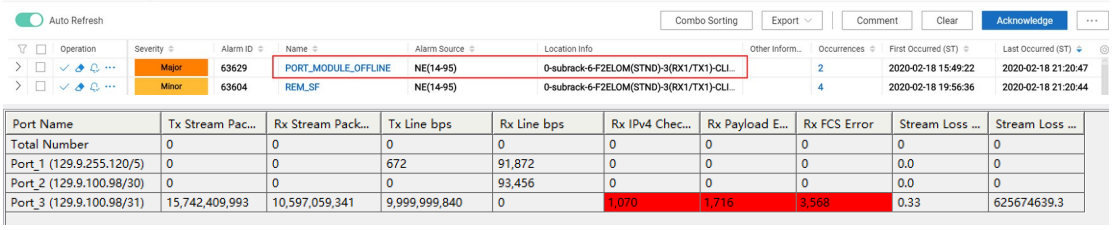
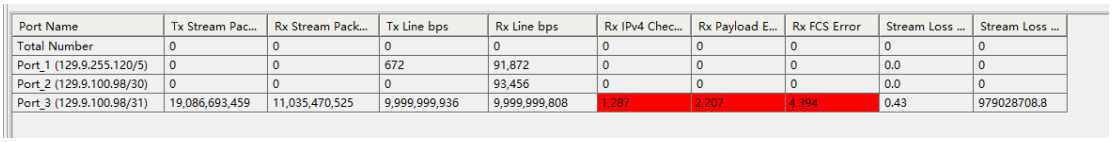
4. The fiber and services are restored.

Port Name	Tx Stream Pac...	Rx Stream Pack...	Tx Line bps	Rx Line bps	Rx IPv4 Chec...	Rx Payload E...	Rx FCS Error	Stream Loss ...	Stream Loss ...
Total Number	0	0	0	0	0	0	0	0	0
Port_1 (129.9.255.120/5)	0	0	0	91,200	0	0	0	0.0	0
Port_2 (129.9.100.98/30)	0	0	672	93,280	0	0	0	0.0	0
Port_3 (129.9.100.98/31)	13,711,646,142	9,507,090,144	9,999,999,904	9,999,999,680	408	441	1,213	0.31	511274009.4

Criteria	If the actual result of each step is consistent with the expected result, the test is passed. Otherwise, the test fails.
Result	**Passed**

3.3 Optical Module Removal and Re-Insertion Test

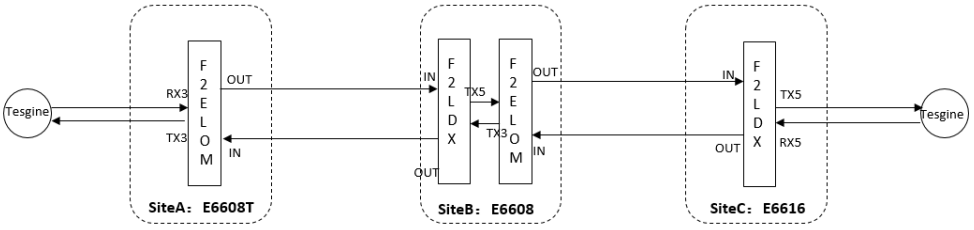
Test Case	Optical module removal and re-insertion test		
Description	To verify the service recovery after optical module removal and re-insertion		
Prerequisites	The E2E networking is completed as shown in the following diagram.  The test meters and environment are properly powered on, services are provisioned, and no bit error occurs.		
No.	**Procedure/Input Data**	**Expected Result**	**Actual Result**
1	Remove the optical module that connects the ELOM board at site A to the meter.	Services are interrupted, and the ELOM board reports the RPORT_MODULE_OFFLINE alarms.	Services are interrupted, and the board reports the RPORT_MODULE_OFFLINE alarm indicating that the module is offline.
2	Insert the optical module on the ELOM board at site A to the meter.	The RPORT_MODULE_OFFLINE alarms are cleared, and the services are restored.	The RPORT_MODULE_OFFLINE alarms are cleared, and the services are restored.

3	Query the NE alarms and performance events.	No anomaly alarms or performance events are reported.	No anomaly alarms or performance events are reported.
Key Screenshots			
1. The optical module is removed and then re-inserted.  2. After the optical module is re-inserted, services are restored. 			
Criteria	If the actual result of each step is consistent with the expected result, the test is passed. Otherwise, the test fails.		
Result	**Passed**		

Port Name	Tx Stream Pac...	Rx Stream Pack...	Tx Line bps	Rx Line bps	Rx IPv4 Chec...	Rx Payload E...	Rx FCS Error	Stream Loss ...	Stream Loss ...
Total Number	0	0	0	0	0	0	0	0	0
Port_1 (129.9.255.120/5)	0	0	672	91,872	0	0	0	0.0	0
Port_2 (129.9.100.98/30)	0	0	0	93,456	0	0	0	0.0	0
Port_3 (129.9.100.98/31)	15,742,409,993	10,597,059,341	9,999,999,840	0	1,070	1,716	3,568	0.33	625674639.3

Port Name	Tx Stream Pac...	Rx Stream Pack...	Tx Line bps	Rx Line bps	Rx IPv4 Chec...	Rx Payload E...	Rx FCS Error	Stream Loss ...	Stream Loss ...
Total Number	0	0	0	0	0	0	0	0	0
Port_1 (129.9.255.120/5)	0	0	672	91,872	0	0	0	0.0	0
Port_2 (129.9.100.98/30)	0	0	0	93,456	0	0	0	0.0	0
Port_3 (129.9.100.98/31)	19,086,693,459	11,035,470,525	9,999,999,936	9,999,999,808	1,287	2,207	4,394	0.43	979028708.8

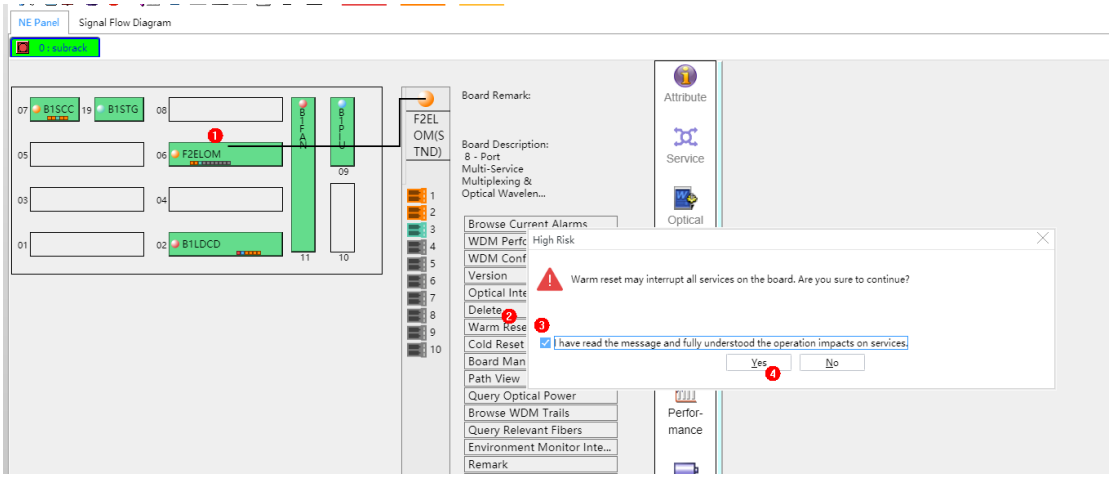
3.4 Board Warm Reset Test

Test Case	Board warm reset test		
Description	To verify that services are not interrupted during a warm reset on a board		
Prerequisites	The E2E networking is completed as shown in the following diagram.  The test meters and environment are properly powered on, services are provisioned, and no bit error occurs.		
No.	**Procedure/Input Data**	**Expected Result**	**Actual Result**

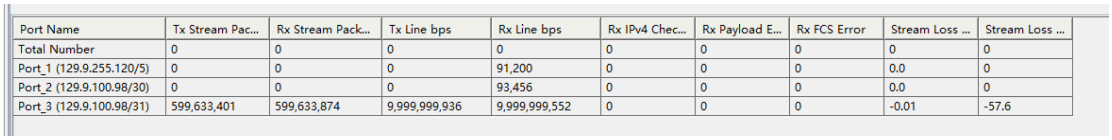
1	Perform a warm reset on the ELOM board at site A.	No packet loss or bit error occurs.	No packet loss or bit error occurs.
2	After the reset, the board can go online normally and services are not interrupted.	Services are not interrupted during the board reset.	Services are not interrupted during the board reset.
3	Query the NE alarms and performance events.	No anomaly alarms or performance events are reported.	No anomaly alarms or performance events are reported.

Key Screenshots

1. A warm reset is performed on the board.



2. The warm reset does not affect services.

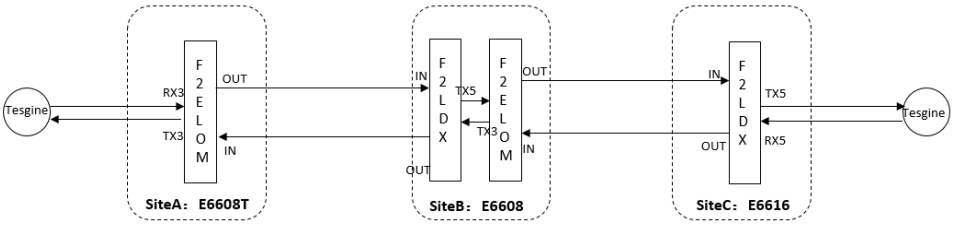


Port Name	Tx Stream Pac...	Rx Stream Pack...	Tx Line bps	Rx Line bps	Rx IPv4 Chec...	Rx Payload E...	Rx FCS Error	Stream Loss ...	Stream Loss ...
Total Number	0	0	0	0	0	0	0	0	0
Port_1 (129.9.255.120/5)	0	0	0	91,200	0	0	0	0.0	0
Port_2 (129.9.100.98/30)	0	0	0	93,456	0	0	0	0.0	0
Port_3 (129.9.100.98/31)	599,633,401	599,633,874	9,999,999,936	9,999,999,552	0	0	0	-0.01	-57.6

Criteria	If the actual result of each step is consistent with the expected result, the test is passed. Otherwise, the test fails.
Result	**Passed**

3.5 Board Cold Reset Test

Test Case	Board cold reset test
Description	To verify the service recovery after a cold reset on a board
Prerequisites	The E2E networking is completed as shown in the following diagram.

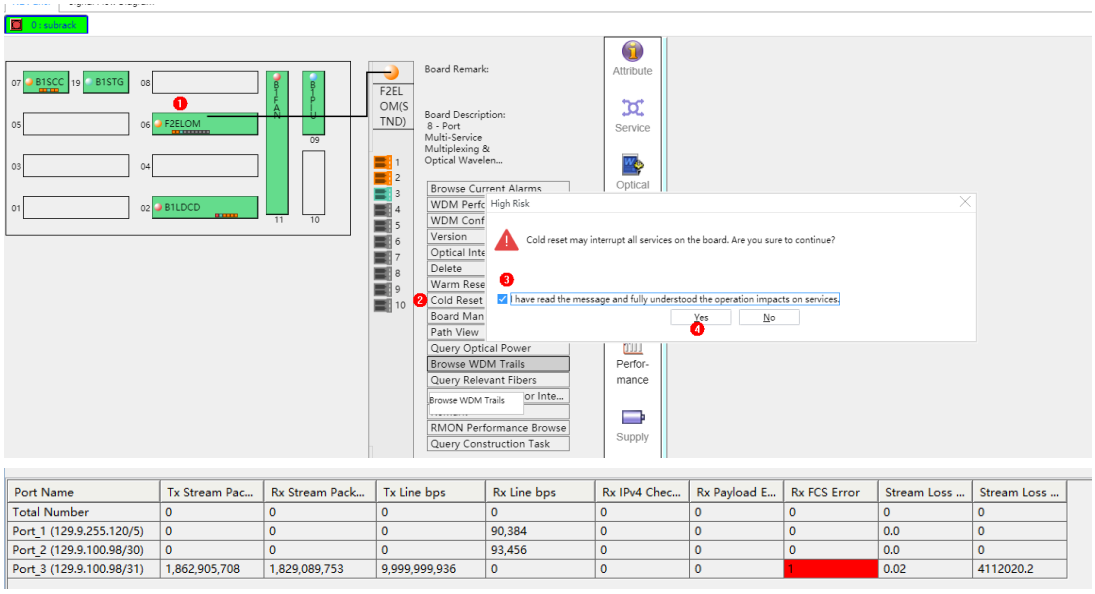


The test meters and environment are properly powered on, services are provisioned, and no bit error occurs.

No.	Procedure/Input Data	Expected Result	Actual Result
1	Perform a cold reset on the ELOM board at site A.	Services are interrupted, and the ELOM board reports the BD_STATUS alarms.	Services are interrupted, and the board reports the BD_STATUS alarms.
2	After the reset, the board can go online normally and services are restored.	The BD_STATUS alarms are cleared and services are restored after the board restarts from the reset.	The BD_STATUS alarms are cleared, and the services are restored.
3	Query the NE alarms and performance events.	No anomaly alarms or performance events are reported.	No anomaly alarms or performance events are reported.

Key Screenshots

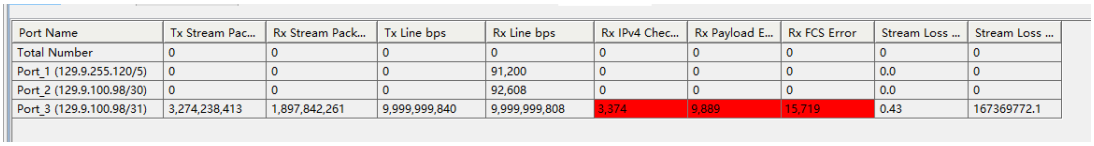
1. A cold reset is performed on a board.



Port Name	Tx Stream Pac...	Rx Stream Pack...	Tx Line bps	Rx Line bps	Rx IPv4 Chec...	Rx Payload E...	Rx FCS Error	Stream Loss ...	Stream Loss ...
Total Number	0	0	0	0	0	0	0	0	0
Port_1 (129.9.255.120/5)	0	0	0	90,384	0	0	0	0.0	0
Port_2 (129.9.100.98/30)	0	0	0	93,456	0	0	0	0.0	0
Port_3 (129.9.100.98/31)	1,862,905,708	1,829,089,753	9,999,999,936	0	0	0	1	0.02	4112020.2

The board reports an alarm.

2. After the board is reset, the services are restored.

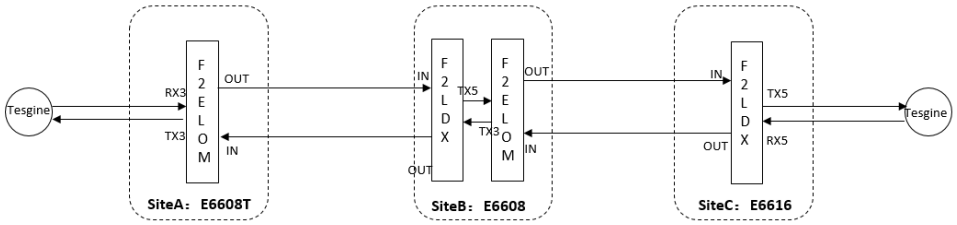


Port Name	Tx Stream Pac...	Rx Stream Pack...	Tx Line bps	Rx Line bps	Rx IPv4 Chec...	Rx Payload E...	Rx FCS Error	Stream Loss ...	Stream Loss ...
Total Number	0	0	0	0	0	0	0	0	0
Port_1 (129.9.255.120/5)	0	0	0	91,200	0	0	0	0.0	0
Port_2 (129.9.100.98/30)	0	0	0	92,608	0	0	0	0.0	0
Port_3 (129.9.100.98/31)	3,274,238,413	1,897,842,261	9,999,999,840	9,999,999,808	3,374	9,889	15,719	0.43	167369772.1

3. No abnormal alarm is reported upon alarm query.

Criteria	If the actual result of each step is consistent with the expected result, the test is passed. Otherwise, the test fails.
Result	**Passed**

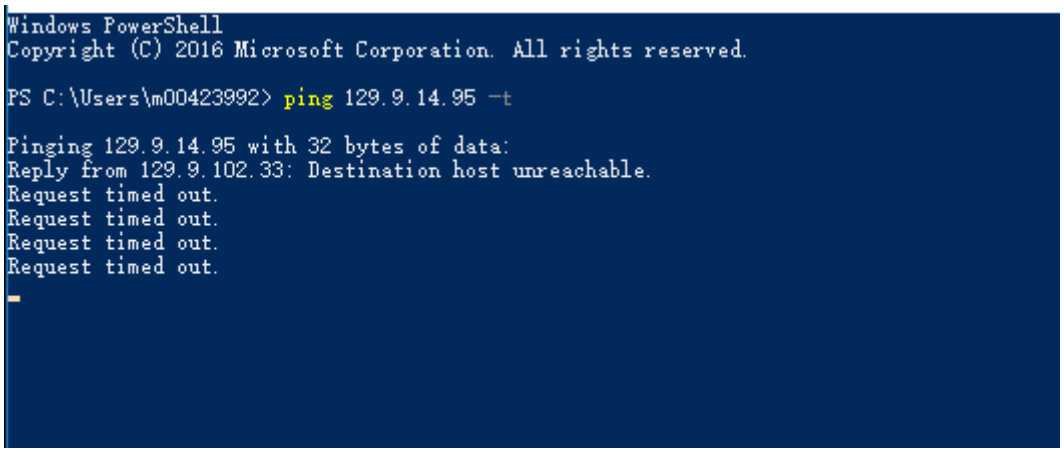
3.6 NE Power Failure Test

Test Case	NE power failure test		
Description	To verify the service recovery after NE power failure		
Prerequisites	The E2E networking is completed as shown in the following diagram.  The test meters and environment are properly powered on, services are provisioned, and no bit error occurs.		
No.	**Procedure/Input Data**	**Expected Result**	**Actual Result**
1	Power of the NE.	Services are interrupted and the NE cannot be connected.	Services are interrupted and the NE cannot be connected.
2	After the NE is powered on, the boards on the NE can	After the NE is powered off and then powered on, the NE	After the NE is powered off and then powered on, the NE can be

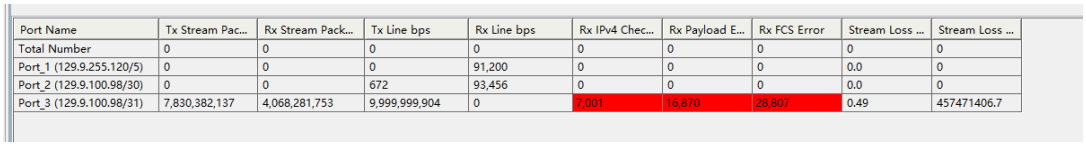
	go online normally and services can be restored.	can be connected, the board can go online normally, and services can be restored without any bit error.	connected, the board can go online normally, and services can be restored without any bit error or packet loss.
3	Query the NE alarms and performance events.	No anomaly alarms or performance events are reported.	No anomaly alarms or performance events are reported.

Key Screenshots

1. The NE undergoes a power failure.

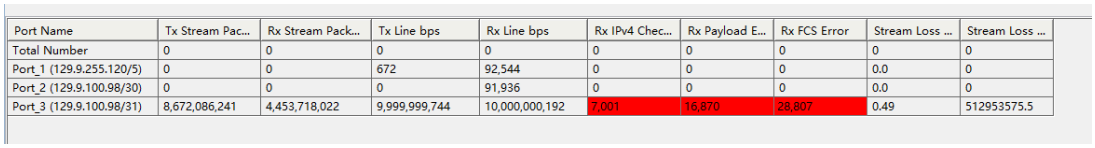

Windows PowerShell
Copyright (C) 2016 Microsoft Corporation. All rights reserved.
PS C:\Users\m00423992> ping 129.9.14.95 -t
Pinging 129.9.14.95 with 32 bytes of data:
Reply from 129.9.102.33: Destination host unreachable.
Request timed out.
Request timed out.
Request timed out.
Request timed out.

2. The services are interrupted.



Port Name	Tx Stream Pac...	Rx Stream Pack...	Tx Line bps	Rx Line bps	Rx IPv4 Chec...	Rx Payload E...	Rx FCS Error	Stream Loss ...	Stream Loss ...
Total Number	0	0	0	0	0	0	0	0	0
Port_1 (129.9.255.120/5)	0	0	0	91,200	0	0	0	0.0	0
Port_2 (129.9.100.98/30)	0	0	672	93,456	0	0	0	0.0	0
Port_3 (129.9.100.98/31)	7,830,382,137	4,068,281,753	9,999,999,904	0	7,001	16,870	28,807	0.49	457471406.7

3. Services are restored.

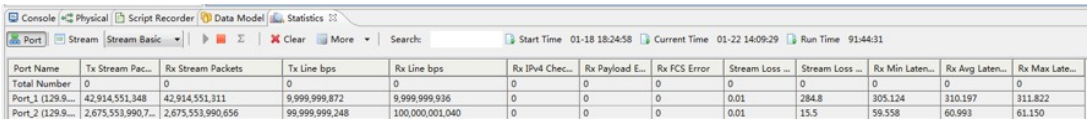


Port Name	Tx Stream Pac...	Rx Stream Pack...	Tx Line bps	Rx Line bps	Rx IPv4 Chec...	Rx Payload E...	Rx FCS Error	Stream Loss ...	Stream Loss ...
Total Number	0	0	0	0	0	0	0	0	0
Port_1 (129.9.255.120/5)	0	0	672	92,544	0	0	0	0.0	0
Port_2 (129.9.100.98/30)	0	0	0	91,936	0	0	0	0.0	0
Port_3 (129.9.100.98/31)	8,672,086,241	4,453,718,022	9,999,999,744	10,000,000,192	7,001	16,870	28,807	0.49	512953575.5

Criteria	If the actual result of each step is consistent with the expected result, the test is passed. Otherwise, the test fails.
Result	**Passed**

4 Stability Test

4.1 Long-Term Service Test

Test Case	Long-term service test		
Description	To verify that no bit error or packet loss occurs in the 10GE service for 72 hours		
Prerequisites	The test meters and environment are properly powered on, and the test meters are normal.		
No.	**Procedure**	**Expected Result**	**Actual Result**
1	Provision services as usual.	The services are successfully provisioned, the meter is normal, and no bit error occurs.	The services are successfully provisioned and no bit error or packet loss occurs.
2	Keep the services running for 72 hours.	The meter shows that no bit error or packet loss occurs.	After 72 hours, the service is normal and the test meter shows that no packet loss or bit error occurs.
Key Screenshots			
Services are running for 72 hours without packet loss or bit errors. 			
Criteria	If the actual result of each step is consistent with the expected result, the test is passed. Otherwise, the test fails.		
Result	**Passed**		

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(Seal)

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